Smoking May Decrease the Incidence of Thyroid Cancer in Postmenopausal Women

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Results
There were 331 cases of thyroid cancer, of which 276 were papillary thyroid cancers (PTCs). At baseline, patients with thyroid cancer were significantly younger (61.9 vs. 63.2 years) and taller (163.3 vs. 161.8 cm), had lower alcohol intake, and had a much greater frequency of thyroid nodules and goiter than patients who did not have cancer. Women who had smoked for <20 years were at elevated risk for thyroid cancer (HR, 1.35; 95% CI, 1.05 to 1.74). Smokers of >40 pack-years had a significantly reduced risk of PTC based on 8 exposed cancer cases (vs. 12,300 smokers who did not have cancer) (HR, 0.44; 95% CI, 0.21 to 0.89). Current smokers (11,200) had a reduced risk for PTC (HR, 0.34; 95% CI, 0.15 to 0.78), but there were only 6 patients with PTC for comparison.

Alcohol consumption was not associated with an altered risk of thyroid cancer, nor was the amount of alcohol associated with the risk of thyroid cancer. There was no interaction between smoking and drinking on the risk of thyroid cancer.

Conclusions
“Our findings suggest that current smoking and having higher pack-years of exposure are associated with a modestly reduced risk of thyroid cancer, whereas alcohol consumption does not appear to affect risk.”

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ANALYSIS AND COMMENTARY

For people who are prejudiced against smoking, as I am, these results are disquieting. In November 2012 the Chancellor of UCLA announced that UCLA will become a tobacco-free campus starting April 2013, and I welcomed this plan. The authors reference five studies that showed an inverse association of thyroid cancer and smoking, mainly case–control studies, so their finding is not novel. How can the findings be explained? Smoking is associated with reduced serum TSH levels based on an analysis of the third National Health and Nutrition Examination (NHANES III) data (1). Smokers had a reduced frequency of elevated serum TSH, and within the normal range of serum TSH, smokers had a twofold increase in the incidence of low-normal TSH (0.1 to 0.4 mU/L) as compared with nonsmokers. Abundant data exist showing that higher serum TSH is associated with increased frequency of malignancy in patients with thyroid nodules (2). Could TSH suppression by smoking prevent the development of cancer in thyroid cells that harbor oncogenic mutations?

Another possibility is that the broad array of cancers and vascular diseases induced by smoking causes deaths and, in a sense, prevents the development of other diseases, such as thyroid cancer.

Because of the very large number of subjects in the WHI, trivial differences become significant, such as the taller height and younger age of the patients with thyroid cancer. One major limitation is that the data from this study apply only to postmenopausal women.

References
